

CLAIMS

1. A seamless polishing apparatus for utilization in chemical mechanical polishing, comprising:

5 a polishing pad, the polishing pad being shaped like a belt and configured to have no seams; and

a base belt, the base belt including a reinforcement layer and a cushioning layer;
wherein the cushioning layer is an intermediary layer between the polishing belt
pad and the base belt.

10 2. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the polishing pad is a polymeric material.

15 3. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 2, wherein the polymeric material is polyurethane.

4. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the cushioning layer is a sponge like material.

20 5. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the cushioning layer is an open-celled polyurethane material.

6. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the reinforcement layer is a steel layer.

7. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the polishing pad is about 40 mils in thickness.

8. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the cushioning layer is about 20 mils in thickness.

9. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, further comprising:

a cap covering an adhesive film between the base belt and the polishing pad.

10. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 9, wherein the cap is a polymeric material.

11. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, further comprising:

a cover configured to seal off an adhesive film between the base belt and the polishing pad from moisture intrusion.

12. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the base belt and the polishing pad are attached by a first adhesive film, and the reinforcement layer and the cushioning layer are attached by a second adhesive film.

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13. A seamless polishing apparatus for utilization in chemical mechanical polishing, comprising:

a polishing pad, the polishing pad being shaped like a belt and configured to have no seams; and

10 a base belt, the base belt including a reinforcement layer and a cushioning layer, the reinforcement layer being a steel layer;

wherein the cushioning layer is an intermediary layer between the continuous pad and the reinforcement layer.

15 14. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 13, wherein the polishing pad is a polymeric material.

15. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 13, wherein the polishing pad is between about 30 mils and
20 about 100 mils in thickness.

16. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 13, wherein the cushioning layer is between about 10 mils and about 100 mils in thickness.

17. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 13, wherein the reinforcement layer is between about 5 mils and about 50 mils in thickness.

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18. A polishing structure for utilization in chemical mechanical polishing, comprising:

a polishing pad, the polishing pad being shaped like a belt and configured to be a contiguous unit, the polishing pad being made of a polymeric material; and

10 a base belt, the base belt including a reinforcement layer and a cushioning layer, the reinforcement layer being a steel layer;

wherein the cushioning layer is an intermediary layer between the polishing pad and the reinforcement layer, the cushioning layer being a polymeric material.

15 19. A polishing structure for utilization in chemical mechanical polishing as recited in claim 18, wherein the steel layer and the cushioning layer are attached by a first adhesive film, and the cushioning layer and the polishing pad are attached by a second adhesive film.

20 20. A seamless polishing apparatus for utilization in chemical mechanical polishing, comprising:

a polishing pad, the polishing pad being shaped like a belt and configured to be a contiguous unit and to have grooves on a pad surface, the polishing pad being made up of polyurethane; and

a base belt, the base belt including a reinforcement layer and a cushioning layer, the reinforcement layer being a steel layer, the reinforcement layer and the cushioning layer being attached by way of a first adhesive film, the base belt and the polishing pad being attached by way of a second adhesive film;

5 wherein the cushioning layer is an intermediary between the polishing pad and the reinforcement layer, the cushioning layer being a polyurethane material.

21. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 20, wherein the polishing pad is between about 40 mils in
10 thickness.

22. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 20, wherein the cushioning layer is about 20 mils in
15 thickness.

23. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 20, wherein the reinforcement layer is about 20 mils in
thickness.

20 24. A seamless polishing apparatus for utilization in chemical mechanical polishing, comprising:

a polishing pad, the polishing pad being shaped like a belt and configured to be a contiguous unit;

a base belt, the base belt including a reinforcement layer and a cushioning layer;
and

a cap covering an adhesive film between the base belt and the polishing pad;

wherein the cushioning layer is an intermediary between the continuous pad and

5 the base belt.

25. A seamless polishing apparatus for utilization in chemical mechanical
polishing as recited in claim 24, wherein the polishing pad is polyurethane.

10 26. A seamless polishing apparatus for utilization in chemical mechanical
polishing as recited in claim 24, wherein the reinforcement layer is a steel layer.

27. A seamless polishing apparatus for utilization in chemical mechanical
polishing, comprising:

15 a polishing pad, the polishing pad being shaped like a belt and configured to have
no seams, and the polishing pad being made of a polymeric material, and the polishing
pad being between about 30 mils and about 100 mils in thickness and configured to have
a grooved top surface; and

a base belt, the base belt including a reinforcement layer and a cushioning layer,
20 the reinforcement layer being a stainless steel layer, and the cushioning layer being
between about 10 mils and about 100 mils in thickness, and the reinforcement layer being
between about 5 mils and 50 mils in thickness;

wherein the cushioning layer is an intermediary layer between the polishing belt
pad and the base belt.

28. A method for generating a polishing pad structure for utilization in chemical mechanical polishing, comprising:

providing a reinforcement layer;

applying a first adhesive film over the reinforcement layer;

5 attaching a cushioning layer on the first adhesive film;

applying a second adhesive film over the cushioning layer;

attaching a seamless polishing pad on the second adhesive film; and

curing the polishing pad structure.

10 29. A method for generating a polishing pad structure for utilization in chemical mechanical polishing as recited in claim 28 wherein the reinforcement layer is a steel layer.

15 30. A method for generating a polishing pad structure for utilization in chemical mechanical polishing as recited in claim 28 wherein the first adhesive layer and the second adhesive layer is a rubber based adhesive.

20 31. A method for generating a polishing pad structure for utilization in chemical mechanical polishing as recited in claim 28 wherein the seamless polishing pad is generated by pouring a polymeric gel into a mold.

32. A method for generating a polishing pad structure for utilization in chemical mechanical polishing as recited in claim 28 wherein the seamless polishing pad is a polymeric material.

33. A method for generating a polishing pad structure for utilization in chemical mechanical polishing as recited in claim 28 wherein the curing includes heating the polishing pad structure.

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34. A method for generating a polishing pad structure for utilization in chemical mechanical polishing, comprising:

providing a reinforcement layer;

applying a first adhesive film on the reinforcement layer;

attaching a cushioning layer on the first adhesive film;

applying a second adhesive film on the cushioning layer;

attaching a seamless polymeric polishing pad on the second adhesive layer, the polymeric polishing pad having a grooved top surface; and

curing the polishing pad structure between about 12 hours to about 48 hours at a temperature of between about 150 F to 300 F.

35. A method for generating a polishing pad structure for utilization in chemical mechanical polishing, comprising:

providing a reinforcement layer;

applying a first adhesive film on the reinforcement layer;

attaching a cushioning layer on the first adhesive film;

applying a second adhesive film on the cushioning layer;

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